Code # EN13 (2014) Rev

**Bulletin Change Transmittal Form**

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| \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Department Curriculum Committee Chair** | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**COPE Chair (if applicable)** |
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|  | \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Enter date…**Vice Chancellor for Academic Affairs** |

**1.Contact Person** (Name, Email Address, Phone Number)

Shubhalaxmi Kher, Ph.D., skher@astate.edu, 870-972-3224

**2.Proposed Change**

**Course EE 4773 Intermediate Lab to EE 4773 Electronics II Laboratory**

**3.Effective Date**

8/1/2015

**4.Justification**

EE 4773 lab course offers a hands on learning experience for the students to carry out experiments and projects related to EE 4373 Electronics II course in Electrical Engineering

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**Area of Concentration: Electrical Engineering**

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| **Electrical Engineering:** Electives denoted with an asterisk (\*) may be selected from any courses within the desig­nated elective group; subject to a program advisor’s approval. They must make a rational contribution to the student’s personal and professional education goals.  | **Sem. Hrs.**  |
| CHEM 1023, General Chemistry II  | 3  |
| CS 2114, Structured Programming  | 4  |
| EE 3401, Electronics I Laboratory  | 1  |
| EE 3403, Electronics I  | 3  |
| EE 3313, Electric Circuits II  | 3  |
| EE 3333, Digital Electronics I  | 3  |
| EE 3343, Engineering Fields and Waves I  | 3  |
| EE 3353, Continuous and Analog Systems  | 3  |
| EE 3383, Principles and Practices in Electrical Engineering  | 3  |
| EE 4323, Electrical Machinery **OR** EE 4353, Power Systems  | 3  |
| EE 4373, Electronics II **OR** EE 3363, Semiconductor Matl and Devices I  | 3  |
| EE 4773, ~~Intermediate Electrical Engineering Laboratory~~Electronics II Laboratory **OR** EE 3303, Semiconductor and Optoelectronic Materials and Devices I Laboratory  | 3  |
| EE 4383, Digital Electronics II **OR** EE 4313, Control Systems  | 3  |
| ENGR 4413, Engineering Problem Solving  | 3  |
| \*Engineering Electives  | 2  |
| \*Approved Electives  | 3  |
| **Total Required Hours:**  | **46**  |

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**Major in Electrical Engineering**

**Bachelor of Science in Electrical Engineering**

A complete 8-semester degree plan is available at http://registrar.astate.edu/.

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| **University Requirements:**  |
| See University General Requirements for Baccalaureate degrees (p. 41)  |
| **First Year Making Connections Course:**  | **Sem. Hrs.**  |
| ENGR 1402, Concepts of Engineering (See College of Engineering Core Courses)  | **-**  |
| **General Education Requirements:**  | **Sem. Hrs.**  |
| See General Education Curriculum for College of Engineering  | **38**  |
| **Additional Support Courses:**  | **Sem. Hrs.**  |
| Refer to Additional Support Courses for College of Engineering  | **7**  |
| **College of Engineering Core Courses:**  | **Sem. Hrs.**  |
| Refer to College of Engineering Core Courses  | **34**  |
| **Major Requirements:** Electives denoted with an asterisk (\*) may be selected from any courses within the desig­nated elective group; subject to a program advisor’s approval. They must make a rational contribution to the student’s personal and professional education goals. In addition to the University requirements for all Baccalaureate Degrees, a Bachelor of Science in Electrical Engineering requires that one of the two following conditions be met: 1. “C” or better in each course in the 49-hour major courses; **OR** 2. 2.5 (or greater) grade point average in the 49-hour major courses listed below.  | **Sem. Hrs.**  |
| CHEM 1023, General Chemistry II  | 3  |
| CS 2114, Structured Programming  | 4  |
| EE 3401, Electronics I Laboratory  | 1  |
| EE 3403, Electronics I  | 3  |
| EE 3313, Electric Circuits II  | 3  |
| EE 3333, Digital Electronics I  | 3  |
| EE 3343, Engineering Fields and Waves I  | 3  |
| EE 3353, Continuous and Analog Systems  | 3  |
| EE 3383, Principles and Practices in Electrical Engineering  | 3  |
| EE 4323, Electrical Machinery **OR** EE 4353, Power Systems  | 3  |
| EE 4333, Communications Theory  | 3  |
| EE 4373, Electronics II **OR** EE 3363, Semiconductor Materials and Devices I  | 3  |
| EE 4773, ~~Intermediate EE Lab~~Electronics II Laboratory **OR** EE 3303, Semiconductor and Optoelectronics Matl and Devices I Lab  | 3  |
| EE 4383, Digital Electronics II **OR** EE 4313, Control Systems  | 3  |
| ENGR 4413, Engineering Problem Solving  | 3  |
| \*Engineering Electives  | 2  |
| \*Approved Electives  | 3  |
| **Sub-total**  | **49**  |
| **Total Required Hours:**  | **128** |

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**EE 3383. Principles and Practices in Electrical Engineering** Principles of and good prac­tices in electrical engineering, professional organizations, literature, intellectual property, licensure, ethics and regulations, vendors, products, specifications, procurement, communications and human relations, resource management, product certification and manufacturability, and modern and tools and issues. Prerequisite, C or better in EE 3313. Spring.

**EE 3401. Electronics I Laboratory** Basic laboratory experiments in electronic circuits and solid state electronic devices. Corequisite, EE 3403. Prerequisite, C or better in ENGR 2421. Fall.

**EE 3403. Electronics I** Theory, analysis, and introductory design of diode, bipolar junction transistor, operational amplifier, and field effect transistor devices and circuits. Prerequisite, C or better in ENGR 2423. Fall.

**EE 4303. Engineering Field and Waves II** Study of electromagnetic waves in free space, dielectrics, and conductors, transmission lines, polarization, reflection, refraction, diffraction, waveguides, resonators, antennas, and radiation. Prerequisites, C or better in MATH 4403 and EE 3343. Dual listed as EE 5303. Demand.

**EE 4313. Control Systems** Analysis and design of linear feedback systems. Transfer func­tions, transient and steady state characterization, stability determination. Closed loop analysis and design using root locus and frequency domain methods. Prerequisites, C or better in EE 3403. Corequisite, EE 3353. Dual listed as EE 5313. Demand.

**EE 4333. Communications Theory** Frequency spectra of time signals. Review of Fourier series and transforms. Signal mixing, modulation, and demodulation. AM and FM broadcasting techniques and bands. Pulsed and digital communication modes. Prerequisite, C or better in EE 3353 and EE 3403. Dual listed as EE 5333. Demand.

**EE 4321. Electrical Machinery Laboratory** Experiments dealing with motor, generators, transformers, and associated measurements and controls. Prerequisite, C or better in ENGR 2421. Corequisite, EE 4323. Demand.

**EE 4323. Electrical Machinery** Introduction to the analysis and design of electromechanical energy conversion systems, magnetic circuit theory, general transformer and machinery theory, and DC and AC motors and generators. Prerequisite, C or better in EE 3313 or ENGR 3473, and ENGR 3423. Dual listed as EE 5323. Demand.

**EE 4344. Microprocessor and PLC Applications** A microcomputer and programmable logic controller course for junior and senior level engineers. A survey of small computers and their engineering functions including control, sensing, and computation. The concept of using control programming languages is introduced. Prerequisites, C or better in EE 3333 and EE 3401, or consent of instructor. Dual listed as EE 5344. Demand.

**EE 4353. Power Systems** Generation, transmission, and distribution of large scale electrical power, associated energy losses and practical design problems and complications. Transmission line analysis. Three phase power networks. Load monitoring and control. Prerequisite, C or better in EE 3313 and ENGR 3423. Corequisite, MATH 4403. Dual listed as EE 5353. Demand.

**EE 4373. Electronics II** A continuation of EE 3403 with emphasis on the analysis, simulation, and design of feedback, operational amplifier systems, frequency response, integrated circuits, and power and waveshaping circuits. Prerequisite, C or better in EE 3313, ENGR 3443, and EE 3403. Dual listed as EE 5373. Spring, odd.

**EE 4383. Digital Electronics II** Continuation of the study of digital circuit design with emphasis on the design of larger systems and use of LSI components. Register transfer logic, computer interfacing and design, and microcomputer based system design. Prerequisite, C or better in EE 3333. Demand. Dual listed as EE 5383.

**EE 4773. ~~Intermediate Electrical Engineering~~ Electronics II Laboratory** Advanced design-oriented experi­ments in electronics, measurement, interfacing, and other electrical engineering topics. Corequisite, EE 4373. Prerequisites, C or better in EE 3333, and EE 3401. Spring.